

Attachment 8

Economic Analysis-Water Supply Costs and Benefits

The Project is proposing to construct 18,000 linear feet of 24 inch recycled water pipeline along Arrow Boulevard from Hickory Avenue to Tokay Avenue. Recycled water will be provided by the Inland Empire Utilities Agency (IEUA) regional recycled water system. The Project intends to convey approximately 1,750 acre-feet per year for aquifer recharge. The proposed recycled waterline is presented on Attachment 3.2. The Project will eliminate enhance regional water supplies in the Chino Basin aquifer.

The Project's costs related to water supply include the installation of a 24 inch recycled waterline and related appurtenances. As shown on Attachment 4.1, the water supply construction costs are estimated at \$2.9 million. The Project's total economic costs are shown on Table 6 in Attachment 4.

The Chino Groundwater Basin, as shown in Attachment 8.1, is managed by Chino Basin Watermaster so that any amounts extracted beyond the operating safe yield must be replenished. Agencies producing more than their rights are subject to a replenishment assessment. Fontana Water Company does not have any right to produce water from the basin and is producing approximately 25,000 AFY, amount is expected to increase with growth.

The basin replenishment source is imported water; however, state water project delivery reliability will continue to be at risk. According to MWD, Tier 2 water is the only water available and that will likely continue well into the future.

There are currently no other aquifer recharge projects developed by the City or in the surrounding area. The Project intends to construct the necessary improvements to enhance regional groundwater recharge. There is approximately 1,750 acre-feet of storm water that is expected to reach the Basin, which combined with the a match of 1,750 acre-feet in recycled water will reduce the City dependence on import water from 25,000 acre-feet per year to 21,500 acre-feet per year, a 14% reduction.

Without the project, no new yield will be captured with project amounts as presented above. Beneficiaries are all water producers from Chino Basin that include an estimated 2.2 million people.

At the completion of construction, Project benefits will immediately be attached. Both conveyance systems will allow for immediate groundwater recharge.

The Project, when completed, will operate as a passive system. When precipitation occurs, water will be delivered to the basin. For the recycled water system, opening of manual control valves will deliver water. There are no uncertainties related to the project benefits.

The Project will not create any adverse effects. To the contrary, it will reclaim a mined pit, currently aesthetically unpleasing, to produce flood control and aquifer recharge facilities.

All values for included tables have been described, qualified, and/or supported in the comment section of each table.

Table 14 - Annual Cost of Water Supply Project
(All Costs should be in 2009 Dollars)

Proposal: Vulcan Pit Flood Control and Aquifer Recharge

Year	Initial Cost	Operations and Maintenance Costs ^{1.)}						Discounting Calculations	
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
	Capital and Other Initial Costs	Administration	Operations	Maintenance	Replacement	Other	Total Costs (a) + ... + (f)	Discount Factor	Discounted Costs (g) * (h)
2009	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	1.000	\$ -
2010	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.943	\$ -
2011	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.890	\$ -
2012	\$ 19,500,000	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 19,508,000	0.840	\$ 16,386,720
2013	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.792	\$ 6,336
2014	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.747	\$ 5,976
2015	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.705	\$ 5,640
2016	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.665	\$ 5,320
2017	\$ -	\$ 2,000	\$ 9,000	\$ 9,000	\$ 38,018	\$ -	\$ 58,018	0.627	\$ 36,377
2018	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.592	\$ 4,736
2019	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.558	\$ 4,464
2020	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.527	\$ 4,216
2021	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.497	\$ 3,976
2022	\$ -	\$ 2,000	\$ 9,000	\$ 9,000	\$ 38,018	\$ -	\$ 58,018	0.469	\$ 27,210
2023	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.442	\$ 3,536
2024	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.417	\$ 3,336
2025	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.394	\$ 3,152
2026	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.371	\$ 2,968
2027	\$ -	\$ 2,000	\$ 9,000	\$ 9,000	\$ 38,018	\$ -	\$ 58,018	0.350	\$ 20,306
2028	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.330	\$ 2,640
2029	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.312	\$ 2,496
2030	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.294	\$ 2,352
2031	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.278	\$ 2,224
2032	\$ -	\$ 2,000	\$ 9,000	\$ 9,000	\$ 38,018	\$ -	\$ 58,018	0.262	\$ 15,201
2033	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.247	\$ 1,976
2034	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.233	\$ 1,864
2035	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.220	\$ 1,760
2036	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.207	\$ 1,656
2037	\$ -	\$ 2,000	\$ 9,000	\$ 9,000	\$ 38,018	\$ -	\$ 58,018	0.196	\$ 11,371

Year	Initial Cost	Operations and Maintenance Costs ^{1.)}						Discounting Calculations	
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
	Capital and Other Initial Costs	Administration	Operations	Maintenance	Replacement	Other	Total Costs (a) + ... + (f)	Discount Factor	Discounted Costs (g) * (h)
2038	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.185	\$ 1,480
2039	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.174	\$ 1,392
2040	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.164	\$ 1,312
2041	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.155	\$ 1,240
2042	\$ -	\$ 2,000	\$ 9,000	\$ 9,000	\$ 38,018	\$ -	\$ 58,018	0.146	\$ 8,471
2043	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.138	\$ 1,104
2044	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.130	\$ 1,040
2045	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.123	\$ 984
2046	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.116	\$ 928
2047	\$ -	\$ 2,000	\$ 9,000	\$ 9,000	\$ 38,018	\$ -	\$ 58,018	0.109	\$ 6,324
2048	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.103	\$ 824
2049	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.097	\$ 776
2050	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.092	\$ 736
2051	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.087	\$ 696
2052	\$ -	\$ 2,000	\$ 9,000	\$ 9,000	\$ 38,018	\$ -	\$ 58,018	0.082	\$ 4,757
2053	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.077	\$ 616
2054	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.073	\$ 584
2055	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.069	\$ 552
2056	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.065	\$ 520
2057	\$ -	\$ 2,000	\$ 9,000	\$ 9,000	\$ 38,018	\$ -	\$ 58,018	0.060	\$ 3,481
2058	\$ -	\$ 2,000	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ 8,000	0.058	\$ 464

Total Present Value of Discounted Costs: \$ 16,606,090

Notes:

1.) The incremental change in O&M costs attributable to the project.

Comments:

(a) Capital and Other Initial Costs are taken from and further described in Table 6.

(b) Administrative costs are estimated to include two weeks of work per year at a rate of \$25 per hour.

(c) Operation costs are estimated to include one week of work per year at a rate of \$75 per hour. Additionally, pipe repair, sediment build-up removal, and scouring of the basin floor, will require extra costs every five years estimated at three weeks of work at a rate of \$75 per hour.

(d) Maintenance costs are estimated to include one week of work per year at a rate of \$75 per hour. Additionally, pipe repair, sediment build-up removal, and scouring of the basin floor, will require extra costs every five years estimated at three weeks of work at a rate of \$75 per hour.

(e) Replacement costs include sediment build-up removal (12,600 cubic-yards) and scouring of the basin floor at a rate of \$3 per cubic-yard, to be done every 5 years.

(f) Other costs were not applicable.

(g) Total Costs are the summation of columns (a) through (f).

(h) Discount Factors are based on a 6% discount rate and a 50 year analysis period, as provided in the application.

(i) Discounted Costs are Total Costs multiplied by the Discount Factor.

Table 15 - Annual Water Supply Benefit
(All Costs should be in 2009 Dollars)

Proposal: Vulcan Pit Flood Control and Aquifer Recharge

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit (units)	Without Project	With Project	Change Resulting from Project (e)-(d)	Unit \$ Value ^{1,)}	Annual \$ Value ^{1,)} (f) * (g)	Discount Factor ^{1,)}	Discounted Benefits ^{1,)} (h) * (i)
2009	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	1.000	\$ 2,401,000
	Incurrd Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	1.000	\$ (140,000)
2010	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.943	\$ 2,264,143
	Incurrd Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.943	\$ (132,020)
2011	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.890	\$ 2,136,890
	Incurrd Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.890	\$ (124,600)
2012	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.840	\$ 2,016,840
	Incurrd Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.840	\$ (117,600)
2013	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.792	\$ 1,901,592
	Incurrd Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.792	\$ (110,880)
2014	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.747	\$ 1,793,547
	Incurrd Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.747	\$ (104,580)
2015	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.705	\$ 1,692,705
	Incurrd Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.705	\$ (98,700)
2016	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.665	\$ 1,596,665
	Incurrd Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.665	\$ (93,100)
2017	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.627	\$ 1,505,427
	Incurrd Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.627	\$ (87,780)
2018	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.592	\$ 1,421,392
	Incurrd Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.592	\$ (82,880)
2019	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.558	\$ 1,339,758
	Incurrd Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.558	\$ (78,120)
2020	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.527	\$ 1,265,327
	Incurrd Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.527	\$ (73,780)

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit (units)	Without Project	With Project	Change Resulting from Project (e)-(d)	Unit \$ Value ^{1,)}	Annual \$ Value ^{1,)} (f) * (g)	Discount Factor ^{1,)}	Discounted Benefits ^{1,)} (h) * (i)
2021	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.497	\$ 1,193,297
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.497	\$ (69,580)
2022	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.469	\$ 1,126,069
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.469	\$ (65,660)
2023	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.442	\$ 1,061,242
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.442	\$ (61,880)
2024	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.417	\$ 1,001,217
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.417	\$ (58,380)
2025	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.394	\$ 945,994
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.394	\$ (55,160)
2026	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.371	\$ 890,771
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.371	\$ (51,940)
2027	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.350	\$ 840,350
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.350	\$ (49,000)
2028	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.330	\$ 792,330
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.330	\$ (46,200)
2029	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.312	\$ 749,112
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.312	\$ (43,680)
2030	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.294	\$ 705,894
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.294	\$ (41,160)
2031	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.278	\$ 667,478
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.278	\$ (38,920)
2032	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.262	\$ 629,062
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.262	\$ (36,680)
2033	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.247	\$ 593,047
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.247	\$ (34,580)
2034	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.233	\$ 559,433
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.233	\$ (32,620)

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit (units)	Without Project	With Project	Change Resulting from Project (e)-(d)	Unit \$ Value ^{1,)}	Annual \$ Value ^{1,)} (f) * (g)	Discount Factor ^{1,)}	Discounted Benefits ^{1,)} (h) * (i)
2035	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.220	\$ 528,220
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.220	\$ (30,800)
2036	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.207	\$ 497,007
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.207	\$ (28,980)
2037	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.196	\$ 470,596
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.196	\$ (27,440)
2038	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.185	\$ 444,185
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.185	\$ (25,900)
2039	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.174	\$ 417,774
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.174	\$ (24,360)
2040	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.164	\$ 393,764
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.164	\$ (22,960)
2041	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.155	\$ 372,155
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.155	\$ (21,700)
2042	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.146	\$ 350,546
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.146	\$ (20,440)
2043	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.138	\$ 331,338
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.138	\$ (19,320)
2044	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.130	\$ 312,130
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.130	\$ (18,200)
2045	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.123	\$ 295,323
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.123	\$ (17,220)
2046	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.116	\$ 278,516
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.116	\$ (16,240)
2047	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.109	\$ 261,709
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.109	\$ (15,260)
2048	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.103	\$ 247,303
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.103	\$ (14,420)

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit (units)	Without Project	With Project	Change Resulting from Project (e) - (d)	Unit \$ Value ^{1.)}	Annual \$ Value ^{1.)} (f) * (g)	Discount Factor ^{1.)}	Discounted Benefits ^{1.)} (h) * (i)
2049	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.097	\$ 232,897
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.097	\$ (13,580)
2050	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.092	\$ 220,892
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.092	\$ (12,880)
2051	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.087	\$ 208,887
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.087	\$ (12,180)
2052	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.082	\$ 196,882
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.082	\$ (11,480)
2053	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.077	\$ 184,877
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.077	\$ (10,780)
2054	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.073	\$ 175,273
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.073	\$ (10,220)
2055	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.069	\$ 165,669
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.069	\$ (9,660)
2056	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.065	\$ 156,065
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.065	\$ (9,100)
2057	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.060	\$ 144,060
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.060	\$ (8,400)
2058	Avoided Import Water Cost	ACFT	0	3,500	3,500	\$ 686	\$ 2,401,000	0.058	\$ 139,258
	Incurred Recycled Water Cost	ACFT	0	1,750	1,750	\$ (80)	\$ (140,000)	0.058	\$ (8,120)

Total Present Value of Discounted Costs: \$ 37,776,788

Notes:

1.) The incremental change in O&M costs attributable to the project.

Comments:

(a) Projected Project Life.

(b) Incurred recycled water cost and avoided imported water cost related to aquifer recharge and importing of water.

(c) Measure of Benefit is the unit used for quantifiable benefits.

(d) Without the Project no new yield will be captured.

(e) Annual estimation of import and recycled water amounts based on yearly rainfall average and project watershed.

(f) Change Resulting from Project is the difference in the unit value of the 'With Project' and 'Without Project' scenario.

(g) The Unit Value for imported water at the current Tier 2 level is \$686 per acre-foot as determine by MWD. The unit value for recycled water at the current rate is \$80 per acre-foot as determined by IEUA.

(h) The Annual Value is the cost per year of the benefit.

(i) Discount Factors are based on a 6% discount rate and a 50 year analysis period, as provided in the application.

(j) Discounted Costs are Annual Values multiplied by the Discount Factor.

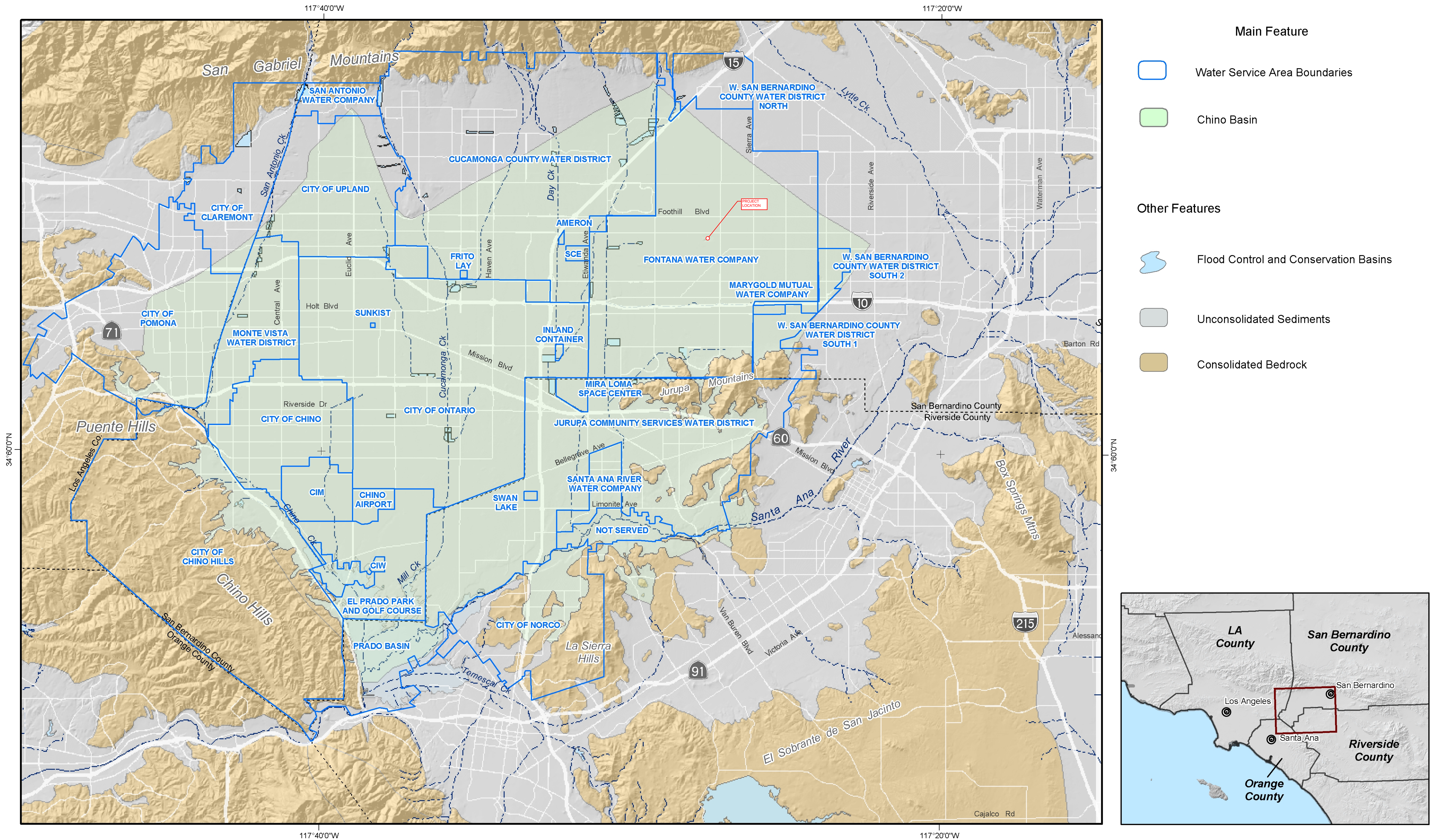
Table 18 - Total Water Supply Benefits
(All Costs should be in 2009 Dollars)

Proposal: Vulcan Pit Flood Control and Aquifer Recharge

Total Discounted Water Supply Benefits	Total Discounted Avoided Project Costs	Other Discounted Water Supply Benefits	Total Present Value of Discounted Benefits
(a)	(b)	(c)	(d) (a) + (c) or (b) + (c)
\$ 16,606,090	\$ 37,776,788	\$ -	\$ 37,776,788

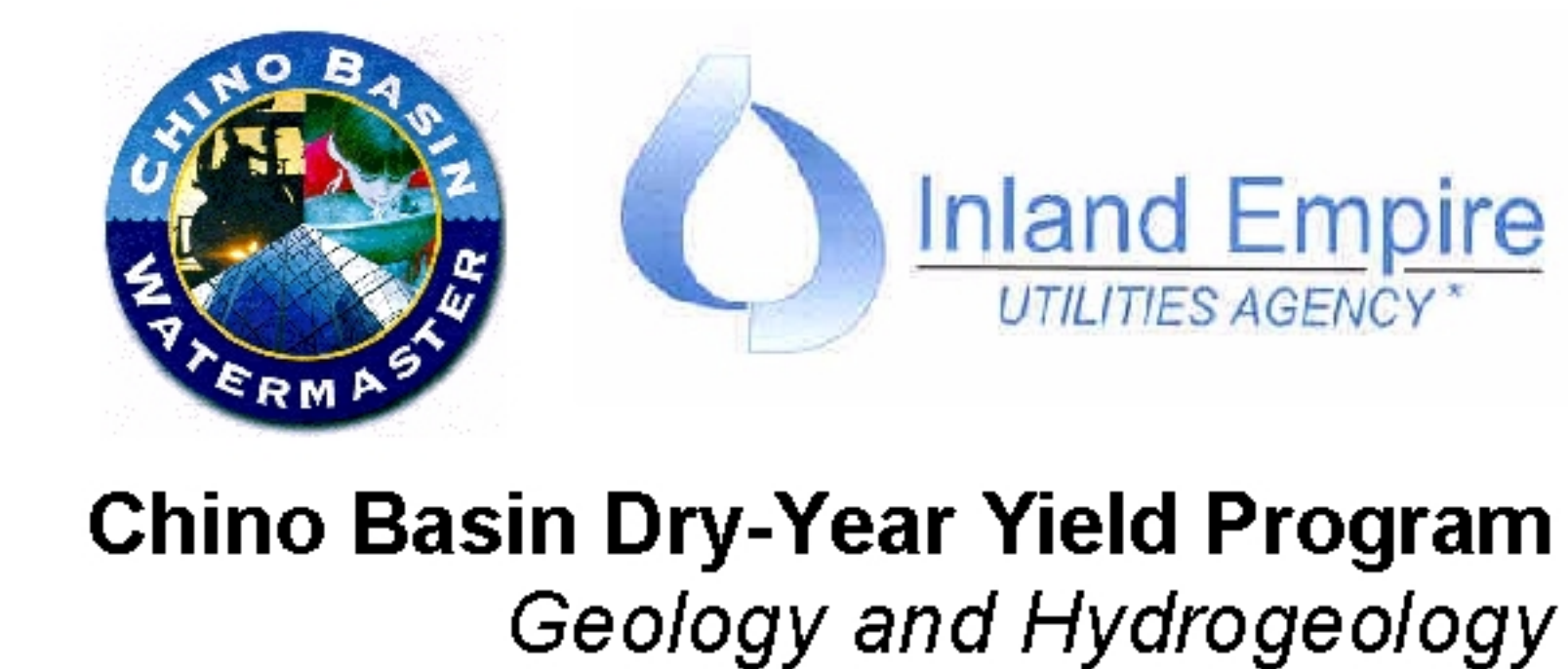
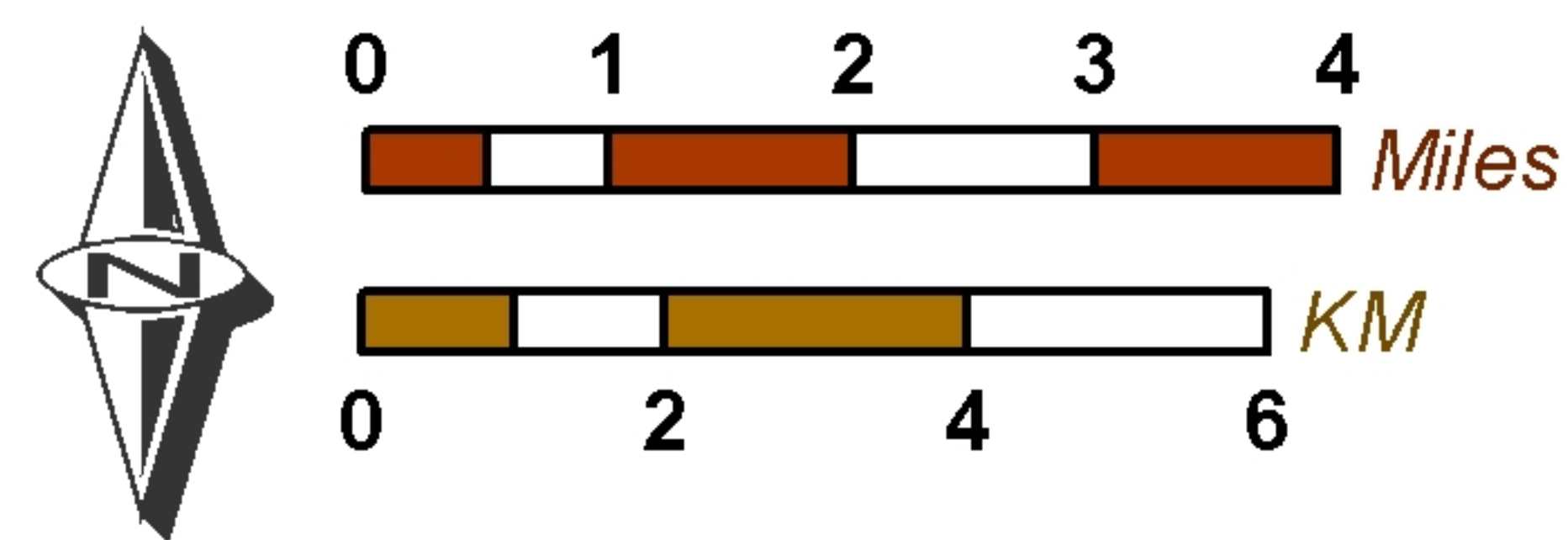
Comments:

- (a) The Total Present Value of Discounted Costs from Table 14.
- (b) The Total Present Value of Discounted Costs from Table 15.
- (c) There are no Other Discounted Water Supply Benefits.
- (d) The largest summation of (a) + (c) or (b) + (c) is entered here, which is (b) + (c)



Produced by:
WE WILDERMUTH ENVIRONMENTAL, INC.
415 N. El Camino Real
San Clemente, CA 92672 Suite A
949.498.9294
www.wild-environment.com

Author: AEM/CKM
Date: 20030616
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Water Service Area Boundaries
in the Chino Basin Area

Figure 4-6